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EXAMINER	
RIPA, BRYAN D	
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1795	
NOTIFICATION DATE	**DELIVERY MODE**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

efspatents@sbiplaw.com

Office Action Summary	Application No.	Applicant(s)
	10/540,232	WURM ET AL.
	Examiner	**Art Unit**
	BRYAN D. RIPA	1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6,9-12,20,21,24 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6,9-12,20,21,24 and 27-29* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

In response to the amendment received on July 2, 2010:

- claims 1-3, 6, 9-12, 20, 21, 24 and 27-29 are presently pending
- the rejections of claims 1 and 28 under 35 U.S.C. 112, second paragraph are withdrawn in light of the amendments to the claims
- the previous prior art rejections of the claims are withdrawn due to the amendments to the claims
- new grounds of rejection are presented below

Claim Objections

1. Claim 6 is objected to because of the following informality: as presently drafted claim 6 depends from newly canceled claim 5. The Examiner will be treating the claim as though it depended from claim 1.

Appropriate correction is required.

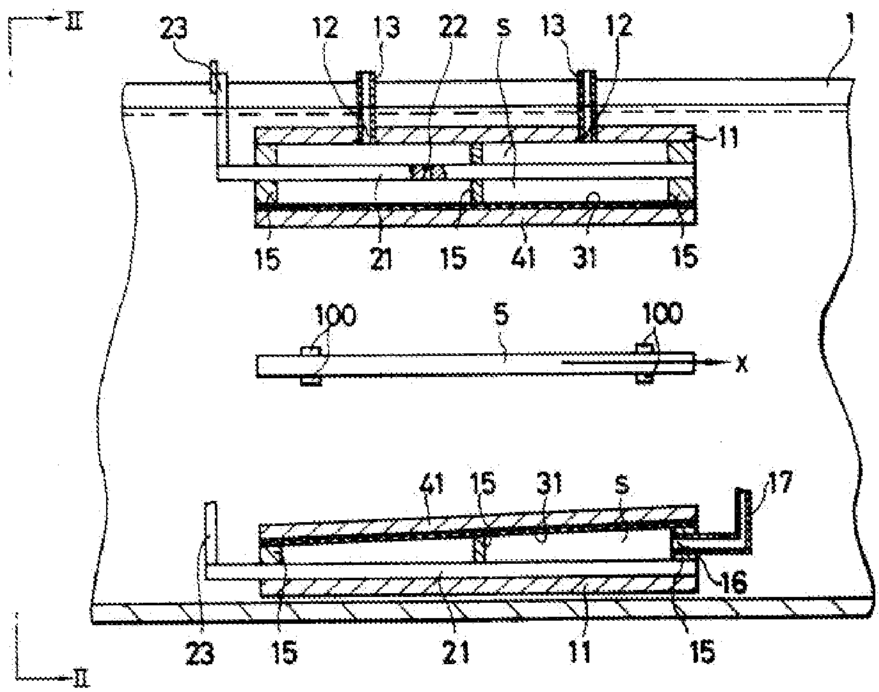
Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-3, 6, 10-12, 20, 21, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usuda et al., (U.S. Pat. No. 5,102,521) (hereinafter referred to as “USUDA”) in view of Yang et al., (U.S. Pat. No. 6,156,169) (hereinafter referred to as “YANG”) and Kovarsky (U.S. Pat. No. 6,852,209) (hereinafter referred to as “KOVARSKY”).

Regarding claim 1, USUDA teaches an anode for electroplating (see generally col. 2 line 57-col. 3 line 7; see also figures 1 and 4), which comprises an anode base and a shield (see insoluble plate electrode 21 as the anode base and diaphragm 31, rib member 41 and spacer 15 forming a shield covering the anode), and wherein the shield is attached to the anode base at a distance from it (see figure 1 depicting rib member 31 and diaphragm 31 attached to insoluble plate electrode 21 at a distance from it) and which reduces material transport to and from the anode base (see figure 1 showing diaphragm 31, rib member 41 and spacer 15 acting to cover the bottom surface of the insoluble plate electrode 21 which would inherently act to reduce the material transport to and from the anode to at least some degree). See figure 1 below.

FIG. 1



While USUDA teaches the anode base being an insoluble anode (see col. 4 lines 28-31), USUDA fails to explicitly teach the anode base comprising a support material and an active layer.

However, KOVARSKY teaches that it is known in the art for insoluble anodes to be formed of a support material and an active layer as claimed (see col. 4 lines 16-19 teaching, among other types, the use of platinized titanium as an insoluble anode, i.e. a support material of titanium with an active layer of platinum).

Consequently, it would have been obvious to one of ordinary skill in the art to use one of the insoluble anodes of KOVARSKY having a support material and active layer

as claimed as the insoluble anode of USUDA because it is known in the art to use electrodes such as a platinized titanium electrode for that purpose.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an insoluble anode made of titanium having an outer layer of platinum, i.e. having a support material and active layer, as taught by KOVARSKY as the insoluble anode of USUDA.

Additionally, while USUDA teaches the use of a shield (see discussion above as to the teachings of figures 1 and 4), USUDA does not explicitly teach the shield comprising a conductive metal material or a conductive metal and plastic material and wherein the shield is connected to the anode base in an electric current-conducting manner.

However, YANG teaches that it was known in the art to use titanium as a suitable material for use within copper and nickel sulfate electroplating baths (see col. 2 lines 5-8 discussing the prior art over which the present invention is an improvement upon in relation to copper and nickel plating from sulfate baths; see also col. 3 lines 33-35 teaching the anode basket structure being made entirely of titanium).

Furthermore, one of ordinary skill in the art would have appreciated the importance that the material to be used for the shield has the necessary mechanical and chemical properties such that it can withstand the harsh conditions within the plating tank while also minimizing the introduction of foreign mater or ions.

As shown by YANG, the use of titanium as an inert material for use within plating solutions was known in the art. Consequently, although USUDA is silent as to the

material to be used in making the anode structure of figures 1 and 4, one of ordinary skill in the art would have readily recognized the use of titanium as one suitable material.

The selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07).

Moreover, the use of titanium as the material for the main unit case 11 would result in the shield of USUDA comprising a conductive metal, i.e. a titanium rib member 41 and spacer 15, and plastic material, i.e. diaphragm 31, attached to the anode 21 as claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the anode of USUDA having the insoluble anode of KOVARSKY such that the main unit case of USUDA is made of titanium as taught by YANG.

Please note, in interpreting the claim limitation requiring the shield to be connected to the anode base in an electric current-conducting manner under the broadest reasonable interpretation standard, the Examiner is treating the limitation of independent claims 1 and 12 as merely requiring the shield and the anode base to be connected in a manner which is capable of conducting current, i.e. either physically touching each other or in physical contact with an electrically conducting material.

Regarding claims 2 and 3, USUDA as modified by KOVARSKY and YANG teaches the anode for electroplating in which the support material is self-passivating under electrolysis conditions and in which the active-layer is electron conducting (see KOVARSKY at col. 4 lines 14-22 teaching the use of an insoluble anode, e.g. platinized titanium, as claimed).

Regarding claim 6, USUDA as modified by KOVARSKY and YANG teaches the anode for electroplating in which the shield comprises one of a metal grid, an expanded metal and a perforated plate (see figure 4 of USUDA depicting rib members 41 comprising a grid; see also YANG as incorporated above in the rejection of claim 1 such that the rib members 41 would be made of titanium, i.e. a metal).

Regarding claim 10, USUDA as modified by KOVARSKY and YANG teaches the anode for electroplating in which the form of the shield and the arrangement and the distance of the shield from the anode base are such that the gas bubbles forming at the anode during electroplating are brought together (see figure 1 above; see also col. 4 lines 43-60 discussing the arrangement of the electrode such that gas bubbles are brought together as claimed).

Regarding claim 11, USUDA teaches an anode for electroplating in which the anode is capable of use as a cathode (see discussion above with respect to claim 1).

Please note, the claim limitation reciting the connection of the anode as a cathode is being treated as a statement of intended use. See MPEP 2114. As a result, the prior art structure need only be capable of functioning as claimed in order to read on the claim.

Regarding claim 12, USUDA teaches a method of electroplating (see generally col. 2 line 57-col. 3 line 7; see also figures 1 and 4), comprising:

- providing an anode base (see insoluble plate electrode 21);
- providing a shield attached to the anode base at a distance from the anode base (see diaphragm 31, rib member 41 and spacer 15 forming a shield covering the anode; see also figure 1 depicting rib member 41 and diaphragm 31 attached to insoluble plate electrode 21 at a distance from it);
- applying electric current to the anode base and shield (see col. 4 lines 50-60 discussing the formation of gas that would occur as a current is applied to the anode structure);
- reducing material transport to and from the anode base through the action of the shield as a mechanical barrier (see figure 1 showing diaphragm 31, rib member 41 and spacer 15 acting to cover the bottom surface of the insoluble plate electrode 21 which would inherently act to reduce the material transport to and from the anode to at least some degree). See figure 1 below.

While USUDA teaches the anode base being an insoluble anode (see col. 4 lines 28-31), USUDA fails to explicitly teach the anode base comprising a support material and an active layer.

However, KOVARSKY teaches that it is known in the art for insoluble anodes to be formed of a support material and an active layer as claimed (see col. 4 lines 16-19 teaching, among other types, the use of platinized titanium as an insoluble anode, i.e. a support material of titanium with an active layer of platinum).

Consequently, it would have been obvious to one of ordinary skill in the art to use one of the insoluble anodes of KOVARSKY having a support material and active layer as claimed as the insoluble anode of USUDA because it is known in the art to use electrodes such as a platinized titanium electrode for that purpose.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an insoluble anode made of titanium having an outer layer of platinum, i.e. having a support material and active layer, as taught by KOVARSKY as the insoluble anode of USUDA.

Additionally, while USUDA teaches the use of a shield (see discussion above as to the teachings of figures 1 and 4), USUDA does not explicitly teach the shield comprising a conductive metal material or a conductive metal and plastic material and wherein the shield is connected to the anode base in an electric current-conducting manner and further reducing the material transport to and from the anode base through the action of the shield as an electrostatic barrier.

However, YANG teaches that it was known in the art to use titanium as a suitable material for use within copper and nickel sulfate electroplating baths (see col. 2 lines 5-8 discussing the prior art over which the present invention is an improvement upon in relation to copper and nickel plating from sulfate baths; see also col. 3 lines 33-35 teaching the anode basket structure being made entirely of titanium).

Furthermore, one of ordinary skill in the art would have appreciated the importance that the material to be used for the shield has the necessary mechanical and chemical properties such that it can withstand the harsh conditions within the plating tank while also minimizing the introduction of foreign mater or ions.

As shown by YANG, the use of titanium as an inert material for use within plating solutions was known in the art. Consequently, although USUDA is silent as to the material to be used in making the anode structure of figures 1 and 4, one of ordinary skill in the art would have readily recognized the use of titanium as one suitable material.

The selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07).

Moreover, the use of titanium as the material for the main unit case 11 would result in the shield of USUDA comprising a conductive metal, i.e. a titanium rib member 41 and spacer 15, and plastic material, i.e. diaphragm 31, attached to the anode 21 as claimed. Additionally, incorporating the use of titanium as the material for the main unit case would also result in the case acting as an electrostatic barrier such that it would act to reduce the material transport as claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the anode of USUDA having the insoluble anode of KOVARSKY such that the main unit case of USUDA is made of titanium as taught by YANG.

Regarding claims 20, 21, 24 and 28, please see the respective rejection of claims 2, 3, 6, 9 and 10 above.

3. Claims 9 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over USUDA as modified by KOVARSKY and YANG as applied to claims 1 and 12 above, and further in view of Shinohara et al., (U.S. Pat. No. 4,075,069) (hereinafter referred to as “SHINOHARA”).

Regarding claims 9 and 27, while USUDA clearly teaches a space or gap between diaphragm 31 and rib members 41 and the insoluble plate electrode 21 (see figure 1), USUDA as modified by KOVARSKY and YANG fails to explicitly teach the

anode for electroplating wherein the shield is at a distance of 0.01 to 100 mm from the anode base.

However, SHINOHARA teaches that it was known in the art to optimize the distance or spacing between a diaphragm or membrane surrounding an anode so that bubbles formed on the anode can be permitted to rise up smoothly (see col. 3 lines 33-38).

Consequently it would have been obvious to one of ordinary skill in the art based on USUDA that a gap would need to be present. Moreover, based on the teachings of SHINOHARA one of ordinary skill in the art would have appreciated the need to optimize the distance or spacing such that the bubbles are permitted sufficient space to form and be released so as to make there way to the degassing holes of USUDA.

Therefore it would have been obvious to one of ordinary skill in the art to either optimize the distance as claimed or to incorporate the teachings of SHINOHARA disclosing there being a spacing of between 1 to 15 mm between the diaphragm and the insoluble plate electrode.

4. Claims 1-3, 6, 10-12, 20, 21, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Day et al., (U.S. Pat. No. 6,391,170) (hereinafter referred to as "DAY") in view of KOVARSKY and YANG.

Regarding claim 1, DAY teaches an anode for electroplating (see generally col. 2 lines 25-36), which comprises an anode base and a shield (see anode 30 in figure 1

shown to go inside anode box 10), and wherein the shield is attached to the anode base at a distance from it (see figure 1) and which reduces material transport to and from the anode base (see horizontal and vertical spacers 36 and 38 acting to cover the surfaces of anode plate 30 which would inherently act to reduce the material transport to and from the anode to at least some degree) and wherein the shield is connected to the anode base in an electric current-conducting manner (see figure 2 depicting vertical spacer 38 touching anode plate 30 as boss 44). See figures 1 and 2 below.

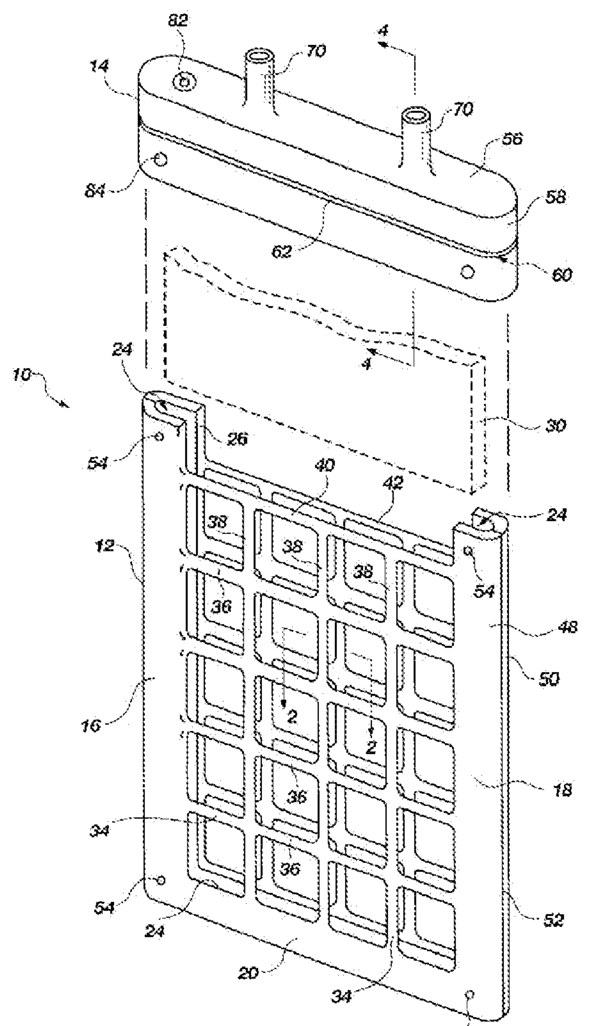


Fig. 1

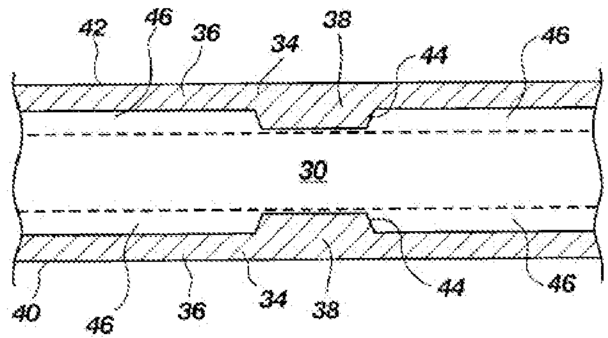


Fig. 2

DAY fails to explicitly teach the anode base comprising a support material and an active layer.

However, KOVARSKY teaches that it is known in the art for insoluble anodes to be formed of a support material and an active layer as claimed (see col. 4 lines 16-19 teaching, among other types, the use of platinized titanium as an insoluble anode, i.e. a support material of titanium with an active layer of platinum).

Consequently, it would have been obvious to one of ordinary skill in the art to use one of the insoluble anodes of KOVARSKY having a support material and active layer as claimed as the anode of DAY because it is known in the art to use electrodes such as a platinized titanium electrode for that purpose.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an insoluble anode made of titanium having an outer layer of platinum, i.e. having a support material and active layer, as taught by KOVARSKY as the anode of DAY.

Additionally, while DAY teaches the use of a shield (see discussion above as to the teachings of figure 1) and the anode box comprising polymer or other materials (see

col. 2 line 64-col. 3 line 11), DAY does not explicitly teach the shield comprising a conductive metal material or a conductive metal and plastic material.

However, YANG teaches that it was known in the art to use titanium as a suitable material for use within corrosive plating baths (see col. 2 lines 5-8 discussing the prior art over which the present invention is an improvement upon in relation to copper and nickel plating from sulfate baths; see also col. 3 lines 33-35 teaching the anode basket structure being made entirely of titanium).

Furthermore, one of ordinary skill in the art would have appreciated the importance that the material to be used for the shield has the necessary mechanical and chemical properties such that it can withstand the harsh conditions within the plating tank while also minimizing the introduction of foreign mater or ions.

As shown by YANG, the use of titanium as an inert material for use within plating solutions was known in the art.

The selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07).

Moreover, the use of titanium as the material for the anode box 10 would result in the shield of DAY comprising a conductive metal, i.e. titanium, as claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the anode box of DAY having the insoluble anode of KOVARSKY such that the anode box of DAY is made of titanium as taught by YANG.

Regarding claims 2 and 3, DAY as modified by KOVARSKY and YANG teaches the anode for electroplating in which the support material is self-passivating under electrolysis conditions and in which the active-layer is electron conducting (see KOVARSKY at col. 4 lines 14-22 teaching the use of an insoluble anode, e.g. platinized titanium, as claimed).

Regarding claim 6, DAY as modified by KOVARSKY and YANG teaches the anode for electroplating in which the shield comprises one of a metal grid, an expanded metal and a perforated plate (see figure 1 of DAY depicting vertical and horizontal spacers comprising a grid; see also YANG as incorporated above in the rejection of claim 1 such that the anode box 10 would be made of titanium, i.e. a metal).

Regarding claim 10, DAY as modified by KOVARSKY and YANG teaches the anode for electroplating in which the form of the shield and the arrangement and the distance of the shield from the anode base are such that the gas bubbles forming at the anode during electroplating are brought together (see figure 1 above and gas vent 82; see also col. 2 lines 55-61).

Regarding claim 11, DAY teaches an anode for electroplating in which the anode is capable of use as a cathode (see discussion above with respect to claim 1).

Please note, the claim limitation reciting the connection of the anode as a cathode is being treated as a statement of intended use. See MPEP 2114. As a result,

the prior art structure need only be capable of functioning as claimed in order to read on the claim.

Regarding claim 12, DAY teaches a method of electroplating (see generally col. 2 lines 25-36), comprising:

- providing an anode base (see anode plate 30);
- providing a shield attached to the anode base at a distance from the anode base (see anode box 10 forming a shield covering anode plate 30; see also figure 2 depicting vertical spacers 38 attached to anode plate 30 and horizontal spacers 36 of anode box 10 at a distance from anode plate 30);
- wherein the shield is connected to the anode base in an electric current-conducting manner (see figure 2 depicting vertical spacer 38 touching anode plate 30 as boss 44);
- applying electric current to the anode base and shield (see col. 3 lines 31-33 discussing the box to be used as an anode which requires the application of a current as claimed);
- reducing material transport to and from the anode base through the action of the shield as a mechanical barrier (see figures 1 and 2 showing the anode box 10 acting to cover anode plate 30 which would inherently act to reduce the material transport to and from the anode to at least some degree). See figure 1 above.

DAY fails to explicitly teach the anode base comprising a support material and an active layer.

However, KOVARSKY teaches that it is known in the art for insoluble anodes to be formed of a support material and an active layer as claimed (see col. 4 lines 16-19 teaching, among other types, the use of platinized titanium as an insoluble anode, i.e. a support material of titanium with an active layer of platinum).

Consequently, it would have been obvious to one of ordinary skill in the art to use one of the insoluble anodes of KOVARSKY having a support material and active layer as claimed as the insoluble anode of DAY because it is known in the art to use electrodes such as a platinized titanium electrode for that purpose.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an insoluble anode made of titanium having an outer layer of platinum, i.e. having a support material and active layer, as taught by KOVARSKY as the anode of DAY.

Additionally, while DAY teaches the use of a shield (see discussion above as to the teachings of figures 1 and 4), DAY does not explicitly teach the shield comprising a conductive metal material or a conductive metal and plastic material and further reducing the material transport to and from the anode base through the action of the shield as an electrostatic barrier.

However, YANG teaches that it was known in the art to use titanium as a suitable material for use within copper and nickel sulfate electroplating baths (see col. 2 lines 5-8 discussing the prior art over which the present invention is an improvement upon in relation to copper and nickel plating from sulfate baths; see also col. 3 lines 33-35 teaching the anode basket structure being made entirely of titanium).

Furthermore, one of ordinary skill in the art would have appreciated the importance that the material to be used for the shield has the necessary mechanical and chemical properties such that it can withstand the harsh conditions within the plating tank while also minimizing the introduction of foreign mater or ions.

As shown by YANG, the use of titanium as an inert material for use within plating solutions was known in the art.

The selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07).

Moreover, the use of titanium as the material for the anode box 10 would result in the shield of DAY comprising a conductive metal, i.e. titanium. Additionally, incorporating the use of titanium as the material for the main unit case would also result in the case acting as an electrostatic barrier such that it would act to reduce the material transport as claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the anode of DAY having the insoluble anode of KOVARSKY such that the main unit case of DAY is made of titanium as taught by YANG.

Regarding claims 20, 21, 24 and 28, please see the respective rejection of claims 2, 3, 6, 9 and 10 above.

5. Claims 9 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over DAY in view of KOVARSKY and YANG as applied to claims 1 and 12 above, and further in view of SHINOHARA.

Regarding claims 9 and 27, while DAY clearly teaches a space or gap between the anode box 10 and the anode plate 30 (see gap 46 in figure 2), DAY as modified by KOVARSKY and YANG fails to explicitly teach the anode for electroplating wherein the shield is at a distance of 0.01 to 100 mm from the anode base.

However, SHINOHARA teaches that it was known in the art to optimize the distance or spacing between a diaphragm or membrane surrounding an anode so that bubbles formed on the anode can be permitted to rise up smoothly (see col. 3 lines 33-38).

Moreover, even though in DAY the shield is not a membrane, the gap is provided for the same purpose, i.e. to provide a space for gas bubbles to flow (see col. 4 lines 11-15). Consequently, based on the teachings of SHINOHARA one of ordinary skill in the art would have appreciated the need to optimize the distance or spacing such that the bubbles are permitted sufficient space to form and be released so as to make there way to the gas vent of DAY.

Therefore it would have been obvious to one of ordinary skill in the art to either optimize the distance as claimed or to incorporate the teachings of SHINOHARA disclosing there being a spacing of between 1 to 15 mm between the diaphragm and the insoluble plate electrode so as to allow room for the gas bubbles.

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over both USUDA and DAY as applied to claim 12 in each of the rejections above, and further in view of Wang (U.S. Pub. No. 2002/0008036) (hereinafter referred to as "WANG").

Regarding claim 29, neither USUDA nor DAY explicitly teaches the electroplating method wherein a cathodic current is applied to the anode base.

However, WANG teaches a plating method for applying a thin film to a wafer substrate which comprises switching polarity between the anode and substrate surface which acts as the cathode in a pulse reverse wave form (see figure 8 and ¶210).

Consequently, a person of ordinary skill in the art would accordingly have recognized the use of the anode in a method of plating requiring the application of a cathodic potential to the anode for brief periods of time.

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395–97 (2007) (see MPEP § 2143, A.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the plating apparatus of KOVARSKY in a plating method using a reverse pulse plating process according to WANG in order to obtain the predictable result of applying a cathodic potential to anode 112 as claimed.

Response to Arguments

Applicant's arguments, see pages 5-7, filed July 2, 2010, with respect to the rejection(s) of claim(s) 1-3, 6, 9-12, 20, 21, 24 and 27-29 under 35 U.S.C. 102 and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of USUDA and DAY as outlined previously.

Furthermore, the Examiner wishes to address one issue regarding the interpretation of claim 1 as amended.

Applicant argues that amended claim 1 has been "amended to positively recite that the shield is conductive" (see Remarks at page 5).

However, the Examiner respectfully disagrees with Applicant's contention. As amended, claim 1 now contains a limitation requiring the shield to comprise "a conductive metal material or a conductive metal and plastic material and wherein the shield is connected to the anode base in an electric current-conducting manner" (see last three lines of amended claim 1).

While this configuration could include one in which the shield is conductive it could also include embodiments in which the shield is not conductive. For instance, suppose an embodiment in which the shield is made of a polymer having metallic rods embedded in the polymer to provide additional support and which is attached to the anode by bolts extending through the plastic shield. In such a hypothetical shield, the shield would read on the claim limitations, i.e. comprise a conductive metal and plastic

material which is connected to the anode in an electric current-conducting manner, but which would not be conductive.

In an earlier communication, the Examiner outlined his interpretation of the claim limitation with respect to the manner in which the shield is connected to the anode base (see Office Action dated March 2, 2010) as merely requiring the shield and the anode base to be connected in a manner which is capable of conducting current, i.e. either physically touching each other or in physical contact with an electrically conducting material.

As stated then, it is the Examiner's opinion that due to the wording of this claim limitation as presently drafted that the limitation does not require the shield to be electrically charged but rather merely to be connected to the anode in such a manner that it could.

Based on Applicant's remarks (see Remarks at page 5), it appears that Applicant's might intend the claim to require the shield to be charged, i.e. not only connected in current-conducting manner but actually energized along with the anode base to which it is attached. If this is Applicant's intent, the Examiner suggests clarifying this by amendment to the claim. However, as presently drafted the Examiner is of the opinion that the interpretation as outlined above and previously in the Office Action dated March 2, 2010 relating to the discussed claim limitations comports with the broadest reasonable interpretation standard as contained within the MPEP.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) “Zinc Electrowinning under Periodical Reverse Current (PRC)” by Piron et al., J. Electrochem. Soc. 137(7) pages 2126-2131 (1990) teaching the application of a cathodic current to the anode for a small period of time during an electrowinning, i.e. electroplating, method.
2) U.S. Pat. No. 6,425,991 to Tran et al. teaching a plating system for depositing cupper having an insoluble anode and a secondary anode.
3) U.S. Pat. No. 6,402,909 to Tran et al. teaching a plating system for depositing cupper having an insoluble anode and a secondary anode.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN D. RIPA whose telephone number is 571-270-7875. The examiner can normally be reached on Monday to Friday, 9:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. D. R./
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795